



Ladner7L.ST25.txt
SEQUENCE LISTING

LADNER, Charles C.
GUTERMAN, Sonia K.
ROBERTS, Bruce L.
MARKLAND, William
LEY, Arthur C.
KENT, Rachel B.

<100> DIRECTED EVOLUTION OF NOVEL BINDING PROTEINS

<130> LADNER=7L

<140> 09/896,005

<141> 2001-06-19

<150> 08/415,913

<151> 1995-03-04

<150> 08/009,319

<151> 1993-01-16

<150> 07/664,969

<151> 1991-03-01

<150> 08/993,776

<151> 1997-12-15

<160> 174

170 Patentin version 3.2

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+020+
 +023+ synthetic - variegated linker for Lam B, between codons 153/154

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 +011+ 4
 +012+ PRT
 +013+ Artificial

+020+
 +023+ synthetic - portion of M13 gene VIII protein

+030+ 9

Met Lys Lys Ser
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 +011+ 5
 +012+ PRT
 +013+ Artificial

+020+
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 +0110 11
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+0140
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+0140
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+0000 18

Gly Gly Gly Ser Gly Ser Ser Ser Leu Gly Ser Ser Ser Leu
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 40201 16
 40202 PRT
 40203 Artificial

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Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys
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 +011+ 25
 +012+ PPT
 +013+ Artificial

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+040+ 36

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Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys
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+010+ 37
 +011+ 26
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 +013+ Artificial

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Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys
20          25

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Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys
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<302> (17)..(19)
<303> Xaa can be any naturally occurring amino acid

<400>
<401> misc_feature
<402> (21)..(26)
<403> Xaa can be any naturally occurring amino acid

<400> 34
Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1          4          10          15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys
20          25

<110> 40
<111> 14
<112> PPT
<113> Artificial

<120>
<123> synthetic, metal finger protein library

<200>
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<202> (5)..(10)
<203> Xaa can be any naturally occurring amino acid

<400> 40
His Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
1          5          10

<110> 41
<111> 14
<112> PPT
<113> Artificial

<120>
<123> synthetic, metal finger protein library

<200>
<201> misc_feature
<202> (5)..(10)
<203> Xaa can be any naturally occurring amino acid

<400> 41

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Cys Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly His
 1 5 10

<210> 42
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, metal finger protein library

<230>
 <231> misc_feature
 <232> (4)..(4)
 <233> Xaa can be any naturally occurring amino acid

<240>
 <241> misc_feature
 <242> (6)..(11)
 <243> Xaa can be any naturally occurring amino acid

<400> 43

His Gly Pro Xaa Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
 1 5 10 15

<210> 43
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, metal finger protein library based on 440-461 of
 HARD90, Fig. 1

<400> 43

Ser Asp Glu Ala Ser Gly Cys His Tyr Gly Val Leu Thr
 1 5 10

<210> 44
 <211> 58
 <212> PRT
 <213> bovine- Bos taurus

<400> 44

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
 1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

210 45
211 58
212 PET
213 Artificial

220
223 synthetic - EpiNE alpha (13-21)

400 45

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

210 46
211 58
212 PET
213 Artificial

220
223 synthetic - EpiNE3 (13-21)

400 46

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

210 47
211 58
212 PET
213 Artificial

220
223 synthetic - EpiNE6 (13-21)

04000 47

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

04100 48

04110 58

04120 PBT

04130 Artificial

04200

04230 Synthetic - EpiNE7 (13-21)

04000 48

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

04100 49

04110 58

04120 PBT

04130 Artificial

04200

04230 Synthetic - EpiNE4 (13-21)

04000 49

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

02100 50
02110 58
02120 PFT
02130 Artificial

02200
02220 synthetic - EpiNE3 (13-21)

04000 50

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Lys Arg Leu Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

02100 51
02110 58
02120 PFT
02130 Artificial

02200
02220 synthetic - EpiNE1 (13-21)

04000 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

02100 51
02110 51
02120 PFT
02130 Artificial

02200

<223> synthetic - EpiNE5 (13-31)

<400> 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 51

<211> 51

<212> PEST

<213> Artificial

<220>

<400> synthetic - EpiNE1 (13-11)

<400> 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 54

<211> 54

<212> PEST

<213> Artificial

<220>

<400> synthetic - EpiC 1 and EpiC 11 (15-19)

<400> 54

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Gly
1 5 10 15

Phe Ser Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

42100 55
 42110 58
 42120 PPT
 42130 Artificial

42200
 42230 synthetic - EpiC7 (15-19)

44000 55

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
 1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

42100 55
 42110 58
 42120 PPT
 42130 Artificial

42200
 42230 synthetic - Epi C8 (15-19)

44000 55

Arg Pro Asp Phe Cys Leu Glu Pro Pro Asn Thr Gly Pro Cys Phe Ala
 1 5 10 15

Ile Thr Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

42100 55
 42110 58
 42120 PPT
 42130 Artificial

0220:

0223: synthetic - EpiC10 (15-19)

0400: 57

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210: 58

0211: 58

0212: PFT

0213: Artificial

0220:

0223: synthetic - EpiC20 (15-19)

0400: 58

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Ser Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210: 59

0211: 58

0212: PFT

0213: Artificial

0220:

0223: synthetic, EPiNE7.6

0400: 59

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Lys Gly Lys Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

02100 60
 02110 58
 02120 PFT
 02130 Artificial

02200
 02230 synthetic, EPiNE7.8, 7.9, 7.31

04000 60

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Glu Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

02100 61
 02110 58
 02120 PFT
 02130 Artificial

02200
 02230 synthetic, EPiNE7.11

04000 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Gly Tyr Ala Gly Cys Arg Ala Lys Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

02100 62
 02110 58

0210> PPT
0213> Artificial

0220>
0223> synthetic, EPiNE7.7

0400> 62

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys His Ala Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210> 63
0211> 5:
0212> PPT
0213> Artificial

0220>
0223> synthetic, EPiNE7.4, 7.14

0400> 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Trp Ala Gln Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210> 64
0211> 5:
0212> PPT
0213> Artificial

0220>
0223> synthetic, EPiNE7.5

0400> 64

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Arg Tyr Gly Gly Cys Leu Ala Glu Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

00100 66
 00110 58
 00120 PFT
 00130 Artificial

00200
 00230 synthetic, EPiNE7.10, 7.20

00400 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Asp Tyr Gly Gly Cys His Ala Asp Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

00100 66
 00110 58
 00120 PFT
 00130 Artificial

00200
 00230 synthetic, EPiNE7.1

00400 66

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Lys Tyr Gly Gly Cys Leu Ala His Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<Q10> 67
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<Q10>
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<Q10> 67

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Thr Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<Q10> 68
 <Q11> 58
 <Q12> PRT
 <Q13> Artificial

<Q10>
 <Q13> synthetic, EPiNE7.19

<Q10> 68

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Asn Tyr Gly Gly Cys Glu Gly Lys Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<Q10> 69
 <Q11> 58
 <Q12> PRT
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<Q10>
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<Q10> 69

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 35 30

Phe Gln Tyr Gly Gly Cys Glu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

02100 70
 02110 58
 02120 PRT
 02130 Artificial

02200
 02230 synthetic, EPiNE7.17

04000 70

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Gln Tyr Gly Gly Cys Leu Gly Glu Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

02100 71
 02110 58
 02120 PRT
 02130 Artificial

02200
 02230 synthetic, EPiNE7.21

04000 71

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Gln Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 72
 <211> 58
 <212> PPT
 <213> Artificial

<220>
 <221> synthetic, EPiNE7.22

<400> 72

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 73
 <211> 53
 <212> PPT
 <213> Artificial

<220>
 <221> synthetic, EPiNE7.23

<400> 73

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 74
 <211> 54
 <212> PPT
 <213> Artificial

<220>
 <221> synthetic, EPiNE7.24

<400> 74

Ladner7L.ST25.txt

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Lys Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

*0100 71
 *0110 58
 *0120 PRT
 *0130 Artificial

*0200
 *0230 synthetic, EPiNE7.15

*4000 71

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Pro Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Leu Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

*0100 76
 *0110 58
 *0120 PRT
 *0130 Artificial

*0200
 *0230 synthetic, EPiNE7.16

*4000 76

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly His Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

Q110 77
Q111 58
Q112 PRT
Q113 Artificial

Q119
Q223 synthetic, EPiNE7.27

Q400 77

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asn Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

Q110 78
Q111 58
Q112 PRT
Q113 Artificial

Q119
Q223 synthetic, EPiNE7.28

Q400 78

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

Q110 79
Q111 58
Q112 PRT
Q113 Artificial

Q119
Q223 synthetic, EPiNE7.29

<400> 79

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 80

<211> 58

<212> PPT

<213> Artificial

<220>

<223> synthetic, EPiNE7.20, 7.34, 7.35

<400> 80

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Lys Tyr Gly Gly Cys Trp Ala Glu Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 81

<211> 58

<212> PPT

<213> Artificial

<220>

<223> synthetic, EPiNE7.32

<400> 81

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Gly Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

+210+ 81
+211+ 52
+212+ PRT
+213+ Artificial

+220+
+223+ synthetic, EPiNE7.33

+400+ 82

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

+210+ 83
+211+ 53
+212+ PRT
+213+ Artificial

+220+
+223+ synthetic, EPiNE7.36

+400+ 83

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys His Gly Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

+210+ 84
+211+ 54
+212+ PRT
+213+ Artificial

+220+

0223- synthetic, EPiNE7.37

0400- 84

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Met Tyr Gly Gly Cys Gln Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210- 85

0211- 58

0212- PET

0213- Artificial

0220-

0223- synthetic, EPiNE7.38

0400- 85

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Tyr Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

0210- 86

0211- 58

0212- PET

0213- Artificial

0220-

0223- synthetic, EPiNE7.39

0400- 86

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Met Tyr Gly Gly Cys Trp Gly Asp Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

4210 87
 4211 58
 4212 PPT
 4213 Artificial

4220
 4223 synthetic, EPiNE7.40

4400 67

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Thr Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

4210 67
 4211 6
 4212 PPT
 4213 Artificial

4220
 4223 synthetic, sequence for Table 131

4230
 4231 misc_feature
 4232 (1)..(6)
 4233 Xaa can be any naturally occurring amino acid

4400 67

Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

4210 67
 4211 24
 4212 DNA
 4213 Artificial

4220
 4223 synthetic, DNA for Class I microprotein library

4220

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 <212> (1)..(2)
 <213> n is a, c, g, or t

<210>
 <211> misc_feature
 <212> (7)..(8)
 <213> n is a, c, g, or t

<210>
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 <212> (10)..(11)
 <213> n is a, c, g, or t

<210>
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 <213> n is a, c, g, or t

<210>
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 <212> (16)..(17)
 <213> n is a, c, g, or t

<210>
 <211> misc_feature
 <212> (22)..(23)
 <213> n is a, c, g, or t

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24

<210> 90
 <211> 13
 <212> DNA
 <213> Artificial

<210>
 <211> synthetic, ds DNA target, upper strand

<400> 90
 ttttgaattc cgc

13

<210> 91
 <211> 13
 <212> DNA
 <213> Artificial

<210>
 <211> synthetic, ds DNA target, lower strand

<400> 91
 ttttgaattc cgc

13

<210> 93
 <211> 16
 <212> DNA
 <213> Artificial

<210>
 <211> synthetic, ss DNA target, no hairpin

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+400+ 92
cctagcctcg tcatta
16

+210+ 93
+211+ 15
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, ss DNA target with hairpin

+400+ 93
ccttaggtac ctacgg
16

+210+ 94
+211+ 15
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, ds DNA target, upper strand

+400+ 94
caccgctatt acggt
15

+210+ 95
+211+ 15
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, ds DNA target, lower strand

+400+ 95
accgtaatag cc
12

+210+ 96
+211+ 20
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, fragment of M13 gene VIII protein

+230+
+231+ WDS
+232+ (9)..(20)

+400+ 96
atttctt atg aaa aag tct
Met Lys Lys Ser
1

+210+ 97
+211+ 4
+212+ PRT
+213+ Artificial

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<220>
 <223> synthetic, fragment of M13 gene VIII protein
 <400> 97

Met Lys Lys Ser
 1

<210> 98
 <211> 10
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, mutated N-terminal of M13 gene VIII

<210>
 <211> CDS
 <212> (9)..(20)

<400> 94
 acttccag ctg aaa aag tct
 Leu Lys Lys Ser
 1

20

<210> 94
 <211> 4
 <212> P&T
 <213> Artificial

<220>
 <223> synthetic, mutated N-terminal of M13 gene VIII

<400> 94

Leu Lys Lys Ser
 1

<210> 100
 <211> 16
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, DNA for ID 10, upper strand

<400> 100
 ctagggagga ggaatcc

16

<210> 101
 <211> 16
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, DNA for ID 10, lower strand, see also ID 16

<400> 101

gggatacctcc tccctc

16

<210> 102
<211> 33
<212> DNA
<213> Artificial

<220>
<223> synthetic, DNA for ID 17

<400> 102
ggtggcgagg gaggaggatc ggcgctgaa ggt

33

<210> 103
<211> 11
<212> DNA
<213> Artificial

<220>
<223> synthetic, DNA for AAG 6-10 of ID 11

<400> 103
gggagatcct cctccctgc c

21

<210> 104
<211> 25
<212> DNA
<213> Artificial

<220>
<223> synthetic, DNA for ID 10, M13.3X7

<400> 104
ggggaggagg aggatccgcc

20

<210> 105
<211> 52
<212> DNA
<213> Artificial

<220>
<223> synthetic, DNA for ID 18, M13.3X11

<400> 105
ggggaggagg gaggatccgg atcctcctcc ctaggatcct cctccctgc cc

52

<210> 106
<211> 18
<212> DNA
<213> Artificial

<220>
<223> synthetic, DNA for library based on Pease et al. "Hybrid I" and
"Hybrid II" (5-10)

<400> 106
rvtyytrrsv hgvhgrmg

18

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<210> 107
<211> 13
<212> DNA
<213> Artificial

<220>
<221> synthetic, DNA for library based on postions 4-7 CMTI-I

<230>
<231> misc_feature
<232> (5)..(5)
<233> n is a, c, g, or t

<240>
<241> misc_feature
<242> (7)..(8)
<243> n is a, c, g, or t

<400> 107
yytvttnnkvv wg 12

<210> 108
<211> 27
<212> DNA
<213> Artificial

<220>
<221> synthetic, EpINE alpha (13-21) DNA

<400> 108
ccttgcgttg ctatgttcca acgctat 27

<210> 109
<211> 27
<212> DNA
<213> Artificial

<220>
<221> synthetic, EpINE3 (13-21) DNA

<400> 109
ccttgcgttg gttttttctc acgctat 27

<210> 110
<211> 27
<212> DNA
<213> Artificial

<220>
<221> synthetic, EpINE6 (13-21) DNA

<400> 110
ccttgcgttg gttttttcca acgctat 27

<210> 111
<211> 27
<212> DNA
<213> Artificial

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+220+
+221+ synthetic, EpiNE7 (13-21) DNA

+400+ 111
acttggcgttg ctatgttccc acgctat 27

+220+
+221+ 112
+222+ 27
+223+ DNA
+224+ Artificial

+220+
+221+ synthetic, EpiNE4 (13-21) DNA

+400+ 111
acttggcgttg ctatgttccc acgctat 27

+220+
+221+ 113
+222+ 27
+223+ DNA
+224+ Artificial

+220+
+221+ synthetic, EpiNE3 (13-21) DNA

+400+ 113
acttggcgttg ctatgttcaa acgctct 27

+220+
+221+ 114
+222+ 27
+223+ DNA
+224+ Artificial

+220+
+221+ synthetic, EpiNE1 (13-21) DNA

+400+ 114
acttgcataag ctttcttccc acgctat 27

+220+
+221+ 115
+222+ 27
+223+ DNA
+224+ Artificial

+220+
+221+ synthetic, EpiNE5 (13-21) DNA

+400+ 115
acttgcataag ctttcttcca acgctat 27

+220+
+221+ 116
+222+ 27
+223+ DNA
+224+ Artificial

+220+
+221+ synthetic, EpiC2 (13-21) DNA

+400+ 116

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ctttgcatcg ctttgttcaa acgctat

27

<110> 117
 <111> 15
 <112> DNA
 <113> Artificial

<114>
 <115> synthetic, EpiC 1 and 11 (15-19) DNA

<400> 117
 atgggtttct ccaaa

15

<116> 118
 <117> 15
 <118> DNA
 <119> Artificial

<120>
 <121> synthetic, EpiC 7 (15-19) DNA

<400> 118
 atgggtttct tcaaa

15

<122> 119
 <123> 15
 <124> DNA
 <125> Artificial

<126>
 <127> synthetic, EpiC8 (15-19) DNA

<400> 119
 ctggtatcca cccca

15

<128> 120
 <129> 15
 <130> DNA
 <131> Artificial

<132>
 <133> synthetic, EpiC10 (15-19) DNA

<400> 120
 atgggtttct tccaa

15

<134> 121
 <135> 15
 <136> DNA
 <137> Artificial

<138>
 <139> synthetic, EpiC20 (15-19) DNA

<400> 121
 atggtatct cccca

15

<140> 122

<211> 72
 <212> PFT
 <213> Artificial

<220>
 <221> synthetic, amino acid seq 1

<400> 112

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
 1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala
 20 25 30

Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala
 35 40 45

Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu
 50 55 60

Phe Lys Lys Phe Thr Ser Lys Ala Ser
 65 70

<210> 133
 <211> 64
 <212> DNA
 <213> Artificial

<220>
 <221> synthetic, oligo #12

<222>
 <223> misc_feature
 <224> (21)..(22)
 <225> n is a, c, g, or t

<226>
 <227> misc_feature
 <228> (24)..(25)
 <229> n is a, c, g, or t

<230>
 <231> misc_feature
 <232> (27)..(28)
 <233> n is a, c, g, or t

<400> 123
 gggacgcac gggtaacctgc nnknknknkg ctgaaggtga tgatccggcc aaagcggccg 60
 ggcg 64

<210> 124
 <211> 70
 <212> DNA
 <213> Artificial

122
 123 synthetic, oligo #12a

124
 125 misc_feature
 126 (21)..(23)
 127 n is a, c, g, or t

128
 129 misc_feature
 130 (24)..(25)
 131 n is a, c, g, or t

132
 133 misc_feature
 134 (27)..(28)
 135 n is a, c, g, or t

136
 137 misc_feature
 138 (30)..(31)
 139 n is a, c, g, or t

140
 141 misc_feature
 142 (33)..(34)
 143 n is a, c, g, or t

144 124
 gggagggcat gggtaacctgc nnknnknnkn nknnkgetga aggtgatgat ccggccaaag 60
 gggagggcgc 70

145 125
 146 76
 147 DNA
 148 Artificial

149
 150 synthetic, oligo #12b

151
 152 misc_feature
 153 (31)..(32)
 154 n is a, c, g, or t

155
 156 misc_feature
 157 (24)..(25)
 158 n is a, c, g, or t

159
 160 misc_feature
 161 (27)..(28)
 162 n is a, c, g, or t

163
 164 misc_feature
 165 (30)..(31)
 166 n is a, c, g, or t

```

+129+
+121+ misc_feature
+122+ (33)..(34)
+123+ n is a, c, g, or t

+130+
+121+ misc_feature
+122+ (36)..(37)
+123+ n is a, c, g, or t

+131+
+121+ misc_feature
+122+ (39)..(40)
+123+ n is a, c, g, or t

+488+ 125
ggagagcgcac gcgtacctgc nnknnknnkn nknnknnkn kgctgaaggt gatgatccgg 60
ccaaagcggc cgcgc 76

+132+ 126
+121+ 27
+122+ DNA
+123+ Artificial

+133+
+123+ synthetic, oligo #13

+489+ 126
gggaggcgat ctttgccgg atc 23

+134+ 127
+121+ 58
+122+ DNA
+123+ Artificial

+135+
+123+ synthetic, oligo #14

+136+
+121+ misc_feature
+122+ (29)..(30)
+123+ n is a, c, g, or t

+137+
+121+ misc_feature
+122+ (32)..(33)
+123+ n is a, c, g, or t

+138+
+121+ misc_feature
+122+ (35)..(36)
+123+ n is a, c, g, or t

+490+ 127
gggacggga cagatgctgt cttttgctnn knnknnkttc tgtctcgagc gcccgcca 58

+139+ 128
+121+ 64
+122+ DNA

```

+013+ Artificial

+010+
+013+ synthetic, oligo #14a

+010+
+011+ misc_feature
+012+ (29)..(30)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (32)..(33)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (35)..(36)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (38)..(39)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (41)..(42)
+013+ n is a, c, g, or t

+000+ 138
ggggcggtta ccgatgctgt cttttgctnn knnknnknnk nnkttctgtc tcgagcgccc 60

gggga 64

+010+ 139
+011+ 70
+012+ DNA
+013+ Artificial

+010+
+013+ synthetic, oligo #14b

+010+
+011+ misc_feature
+012+ (29)..(30)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (31)..(33)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (35)..(36)
+013+ n is a, c, g, or t

+010+
+011+ misc_feature
+012+ (38)..(39)

+113+ n is a, c, g, or t

+110+

+111+ misc_feature

+112+ (41)..(43)

+113+ n is a, c, g, or t

+110+

+111+ misc_feature

+112+ (44)..(45)

+113+ n is a, c, g, or t

+110+

+111+ misc_feature

+112+ (47)..(48)

+113+ n is a, c, j, or t

+400+ 129

ggcgcggtgta ccgatgctgt cttttgctnn knknknknknk nnknknknkt tctgtctcga 60

ggcgcggtgta

70

+110+ 130

+111+ 47

+112+ DNA

+113+ Artificial

+110+

+111+ synthetic, original putative RBS

+400+ 130

ggggtcagag gcttactatg aagaaatctc tgggtcttaa ggctagc 47

+110+ 131

+111+ 48

+112+ DNA

+113+ Artificial

+110+

+111+ synthetic, new RBS

+400+ 131

gggtctgga ggaaataaaa tgaagaaatc tctggttctt aaggctagc 49

+110+ 132

+111+ 41

+112+ DNA

+113+ Artificial

+110+

+111+ syntheticME16 upper strand

+400+ 132

gattctctag agtcggcttt acactttatg cttccggctc g 41

+110+ 133

+111+ 3'

+112+ DNA

+113+ Artificial

```

+220+
+223+ synthetic, MB16, lower strand

+400+ 133
cgagcgggaa gcataaagtg taaagccgac tctagag
37

+210+ 134
+211+ 36
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, MB22 insert, upper strand

+400+ 134
gatacactcc ccatcccccct gttgacaatt aatcat
36

+210+ 135
+211+ 34
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, MB22 insert, lower strand

+400+ 135
cgatgattaa ttgtcaacag ggggatgggg agtg
34

+210+ 136
+211+ 88
+212+ DNA
+213+ Artificial

+220+
+223+ synthetic, DNA/amino acid for phoA signal peptide

+220+
+221+ CDS
+222+ (23)..(88)

+400+ 136
gaattccatg ggagaaaata aa atg aaa caa agc acg atc gca ctc tta ccg
Met Lys Gln Ser Thr Ile Ala Leu Leu Pro
1 5 10
52

tta atg ttt acc cct gtg aca aaa gcc cgt ccg gat
Leu Leu Phe Thr Pro Val Thr Lys Ala Arg Pro Asp
15 20
88

+210+ 137
+211+ 37
+212+ FFT
+213+ Artificial

+220+
+223+ synthetic, DNA/amino acid for phoA signal peptide

+400+ 137

```

Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
 1 5 10 15

Thr Lys Ala Arg Pro Asp
 20

+118+ 133
 +119+ 210
 +120+ DNA
 +121+ Artificial

+122+
 +123+ amp gene promoter and signal sequence; signal peptide

+124+
 +125+ CDS
 +126+ (136)..(210)

+127+ 138
 ggaacgggtg ggaacttttcg gggaaatgtg cgcggaaccc ctatttggtt atttttctaa 60
 ataatattca atatttatcc gtcacatgaga caataaccct gataaatgct tcaataatat 120
 tttttaaagg aagagt atg agt att caa cat ttc cgt gtc gcc ctt att ccc 171
 Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro
 1 5 10
 ttt ttt gcg gca ttt tgc ctt cct gtt ttt gct cat ccg 210
 Phe Phe Ala Ala Phe Cys Leu Pro Val Phe Ala His Pro
 15 20 25

+128+ 139
 +129+ 25
 +130+ PPT
 +131+ Artificial

+132+
 +133+ amp gene promoter and signal sequence; signal peptide

+134+ 139

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
 1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro
 20 25

+135+ 140
 +136+ 25
 +137+ DNA
 +138+ Artificial

+139+
 +140+ synthetic, mutagenic oligo-nt

+141+ 140
 gtttcagcgg cgccagaata gaaag 25

<110> 141
 <111> 15
 <112> DNA
 <113> Artificial

<120>
 <220> synthetic, adaptor for second NarI site, upper strand

<400> 141
 tatctgtggcgc cccgt

15

<110> 142
 <111> 19
 <112> DNA
 <113> Artificial

<120>
 <220> synthetic, adaptor for second NarI site, lower strand

<400> 142
 ccggacgggccc gccagaata

19

<110> 143
 <111> 402
 <112> DNA
 <113> Artificial

<120>
 <220> synthetic, DNA for Table 3, encodes ID122

<130>
 <131> misc_feature
 <132> (10)..(12)
 <133> "nnn" is "tcn" or "agy", n is a, c, g or t

<130>
 <131> misc_feature
 <132> (13)..(15)
 <133> "nnn" is "ttr" or "ctn", n is a, c, g or t

<130>
 <131> misc_feature
 <132> (18)..(21)
 <133> n is a, c, g, or t

<130>
 <131> misc_feature
 <132> (27)..(27)
 <133> n is a, c, g, or t

<130>
 <131> misc_feature
 <132> (28)..(30)
 <133> "nnn" is "tcn" or "agy", n is a, c, g or t

<130>
 <131> misc_feature
 <132> (33)..(33)
 <133> n is a, c, g, or t

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+128+
+131+ misc_feature
+133+ (36)..(36)
+134+ n is a, c, g, or t

+138+
+141+ misc_feature
+143+ (39)..(39)
+144+ n is a, c, g, or t

+149+
+151+ misc_feature
+153+ (42)..(42)
+154+ n is a, c, g, or t

+160+
+161+ misc_feature
+163+ (45)..(45)
+164+ n is a, c, g, or t

+170+
+171+ misc_feature
+173+ (46)..(48)
+174+ "nnn" is "ttr" or "ctn", n is a, c, g or t

+180+
+181+ misc_feature
+183+ (51)..(51)
+184+ n is a, c, g, or t

+190+
+191+ misc_feature
+193+ (54)..(54)
+194+ n is a, c, g, or t

+200+
+201+ misc_feature
+203+ (58)..(60)
+204+ "nnn" is "ttr" or "ctn", n is a, c, g or t

+210+
+211+ misc_feature
+213+ (61)..(63)
+214+ "nnn" is "tcn" or "agy", n is a, c, g or t

+220+
+221+ misc_feature
+223+ (66)..(69)
+224+ n is a, c, g, or t

+230+
+231+ misc_feature
+233+ (70)..(72)
+234+ "nnn" is "cgn" or "agr", n is a, c, g or t

+240+
+241+ misc_feature
+243+ (75)..(75)
+244+ n is a, c, g, or t

+250+
+251+ misc_feature
+253+ (85)..(87)
+254+ "nnn" is "ttr" or "ctn", n is a, c, g or t

```



```

+108+
+109+ misc_feature
+110+ (93)..(93)
+111+ n is a, c, g, or t

+112+
+113+ misc_feature
+114+ (96)..(96)
+115+ n is a, c, g, or t

+116+
+117+ misc_feature
+118+ (101)..(101)
+119+ n is a, c, g, or t

+120+
+121+ misc_feature
+122+ (105)..(105)
+123+ n is a, c, g, or t

+124+
+125+ misc_feature
+126+ (108)..(108)
+127+ n is a, c, g, or t

+128+
+129+ misc_feature
+130+ (117)..(117)
+131+ n is a, c, g, or t

+132+
+133+ misc_feature
+134+ (118)..(120)
+135+ "nnn" is "cgn" or "agr", n is a, c, g or t

+136+
+137+ misc_feature
+138+ (129)..(129)
+139+ n is a, c, g, or t

+140+
+141+ misc_feature
+142+ (144)..(144)
+143+ n is a, c, g, or t

+144+
+145+ misc_feature
+146+ (150)..(150)
+147+ n is a, c, g, or t

+148+
+149+ misc_feature
+150+ (153)..(153)
+151+ n is a, c, g, or t

+152+
+153+ misc_feature
+154+ (154)..(156)
+155+ "nnn" is "trr" or "ctn", n is a, c, g or t

+156+
+157+ misc_feature
+158+ (165)..(168)

```

```

+123+ n is a, c, g, or t

+126+
+131+ misc_feature
+132+ (171)..(171)
+133+ n is a, c, g, or t

+136+
+141+ misc_feature
+142+ (177)..(177)
+143+ n is a, c, g, or t

+148+
+151+ misc_feature
+152+ (180)..(180)
+153+ n is a, c, g, or t

+160+
+161+ misc_feature
+162+ (184)..(186)
+163+ "nnn" is "cgn" or "agr", n is a, c, g or t

+168+
+171+ misc_feature
+172+ (189)..(189)
+173+ n is a, c, g, or t

+180+
+181+ misc_feature
+182+ (194)..(195)
+183+ "nnn" is "cgn" or "agr", n is a, c, g or t

+188+
+189+ misc_feature
+190+ (204)..(210)
+191+ "nnn" is "tcn" or "agy", n is a, c, g or t

+198+
+199+ misc_feature
+200+ (213)..(213)
+201+ n is a, c, g, or t

+208+
+209+ misc_feature
+210+ (223)..(228)
+211+ n is a, c, g, or t

+218+
+219+ misc_feature
+220+ (231)..(231)
+221+ n is a, c, g, or t

+228+
+229+ misc_feature
+230+ (237)..(237)
+231+ n is a, c, g, or t

+238+
+239+ misc_feature
+240+ (240)..(240)
+241+ n is a, c, g, or t

+248+
+249+ misc_feature

```

```

+222> (242)..(243)
+223> n is a, c, g, or t

+224>
+225> misc_feature
+226> (246)..(246)
+227> n is a, c, g, or t

+228>
+229> misc_feature
+230> (250)..(252)
+231> n is a, c, g, or t

+232>
+233> misc_feature
+234> (261)..(261)
+235> n is a, c, g, or t

+236>
+237> misc_feature
+238> (264)..(264)
+239> n is a, c, g, or t

+240>
+241> misc_feature
+242> (270)..(270)
+243> n is a, c, g, or t

+244>
+245> misc_feature
+246> (275)..(273)
+247> n is a, c, g, or t

+248>
+249> misc_feature
+250> (280)..(282)
+251> "nnn" is "tcn" or "agy", n is a, c, g or t

+252>
+253> misc_feature
+254> (283)..(285)
+255> "nnn" is "ttr" or "ctn", n is a, c, g or t

+256>
+257> misc_feature
+258> (291)..(291)
+259> n is a, c, g, or t

+260>
+261> misc_feature
+262> (292)..(294)
+263> "nnn" is "tcn" or "agy", n is a, c, g or t

+264>
+265> misc_feature
+266> (297)..(297)
+267> n is a, c, g, or t

+268>
+269> misc_feature
+270> (300)..(300)
+271> n is a, c, g, or t

+272>

```

```

+221+ misc_feature
+222+ (312)..(312)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (314)..(314)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (324)..(324)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (330)..(330)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (333)..(333)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (336)..(336)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (342)..(342)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (345)..(345)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (348)..(348)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (351)..(351)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (357)..(357)
+223+ n is a, c, g, or t

+220+
+221+ misc_feature
+222+ (364)..(366)
+223+ "nan" is "ttr" or "ctn", n is a, c, g or t

+220+
+221+ misc_feature
+222+ (361)..(361)
+223+ n is a, c, g, or t

```

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<220>
<221> misc_feature
<222> (382)..(384)
<223> "nnn" is "ten" or "agy", n is a, c, g or t

<220>
<221> misc_feature
<222> (390)..(390)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (391)..(393)
<223> "nnn" is "ten" or "agy", n is a, c, g or t

<220>
<221> misc_feature
<222> (394)..(396)
<223> "nnn" is "tar" or "tga"

<220>
<221> misc_feature
<222> (397)..(399)
<223> "nnn" is "tar" or "tga"

<220>
<221> misc_feature
<222> (400)..(402)
<223> "nnn" is "tar" or "tga"

<400> 143
atgaaraarn nnnnngtann naargcnnnn gtngcngtng cnaennngt nccnatgnnn 60
anttygenn nncngaytt ytgynngar cccnctaya cnggncctg yaargcnnnn 120
athhcgnt aytttayaa ygchnaargcn ggnnnntgye araenttygt ntayggnggn 180
tgynngcna arnnnaayaa yttyaarnnn gongargayt gyatgognac ntgyggnggn 240
gongcngang gngaygaycc ngchnaargcn gcnttyaayn nnnncargo nnnngcnacn 300
gartayathg gntaygntg ggnatggtn gtngtnathg tngngcnac nathgggnath 360
aerenttya araenttyac nnnnaargcn nnnnnnnnnn nn 402

<210> 144
<211> 53
<212> PRT
<213> Bos taurus

<400> 144
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

```

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
10 55

110 145
111 58
112 PPT
113 Artificial

120
123 Engineered B-PTI from MARK87

400 145

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Thr Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
10 55

110 146
111 58
112 PPT
113 Artificial

120
123 Engineered B-PTI from MARK87

400 146

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
10 55

110 147
111 67
112 PPT
113 Ebs taurus

400 147

Phe Gln Thr Pro Pro Asp Leu Cys Gln Leu Pro Gln Ala Arg Gly Pro
 1 5 10 15

Cys Lys Ala Ala Leu Leu Arg Tyr Phe Tyr Asn Ser Thr Ser Asn Ala
 20 25 30

Cys Glu Pro Phe Thr Tyr Gly Gly Cys Gln Gly Asn Asn Asn Asn Phe
 35 40 45

Glu Thr Thr Glu Met Cys Leu Arg Ile Cys Glu Pro Pro Gln Gln Thr
 50 55 60

Asp Lys Ser
 65

<210> 148
 <211> 60
 <212> PRT
 <213> Bos taurus

<400> 148

Thr Glu Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
 1 5 10 15

Lys Ala Ala Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys
 20 25 30

Glu Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys
 35 40 45

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55 60

<210> 149
 <211> 58
 <212> PRT
 <213> Artificial

<220>
 <223> Semisynthetic BPTI, TSCH87

<400> 149

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
 1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

010 150
011 58
012 PET
013 Artificial

020
023 Semisynthetic BPTI, TSCH87

040 150

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
10 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

010 151
011 58
012 PET
013 Artificial

020
023 Semisynthetic BPTI, TSCH87

040 151

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

010 152
011 58
012 PRT
013 Artificial

020
023 Semisynthetic BPTI, TSCH87

<400> 152

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Leu Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 153

<211> 58

<212> PBT

<213> Artificial

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 153

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 154

<211> 58

<212> PBT

<213> Artificial

<220>

<223> Engineered BPTI, AUER87

<400> 154

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

35

40

45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
50 55

-210- 136

-211- 66

-212- PRT

-213- Dendroaspis polylepis polylepis

-400- 138

Gln Pro Leu Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1 5 10 15

Tyr Gln Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
20 25 30

Glu Gly Phe Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
35 40 45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys
50 55 60

-210- 136

-211- 57

-212- PRT

-213- Dendroaspis polylepis polylepis

-400- 138

Ala Ala Lys Tyr Cys Lys Leu Pro Leu Arg Ile Gly Pro Cys Lys Arg
1 5 10 15

Lys Ile Pro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro
20 25 30

Phe Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

-210- 137

-211- 57

-212- PRT

-213- Hemachatus hemachates

-400- 137

Arg Pro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1 5 10 15

Tyr Ile Arg Ser Phe His Tyr Asn Leu Ala Ala Gln Gln Cys Leu Gln
 20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
 35 40 45

Asp Glu Cys Arg Arg Thr Cys Val Gly
 50 55

110 158
 111 57
 112 PRT
 113 Naja nivea

400 158

Arg Pro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
 1 5 10 15

Arg Ile Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu
 20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
 35 40 45

Asp Glu Cys His Arg Thr Cys Val Gly
 50 55

110 159
 111 60
 112 PRT
 113 Vipera russelli

400 159

His Asp Arg Pro Thr Phe Cys Asn Leu Pro Pro Glu Ser Gly Arg Cys
 1 5 10 15

Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys
 20 25 30

Lys Val Phe Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu
 35 40 45

Thr Arg Asp Glu Cys Arg Glu Thr Cys Gly Gly Lys
 50 55 60

110 161
 111 64
 112 PRT
 113 Caretta sp.

400 160

Glx Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro
 1 5 10 15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met
 20 25 30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe
 35 40 45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro
 50 55 60

<210> 161
 <211> 53
 <212> PRT
 <213> Helix pomatia

<400> 161

Glx Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys
 1 5 10 15

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys
 20 25 30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp
 35 40 45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val
 50 55

<210> 162
 <211> 57
 <212> PRT
 <213> Dendroaspis angusticeps

<400> 162

Ala Ala Lys Tyr Cys Lys Leu Pro Val Arg Tyr Gly Pro Cys Lys Lys
 1 5 10 15

Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro
 20 25 30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
 35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
 50 55

<210> 163

<211> 59
 <212> PRT
 <213> Dendroaspis angusticeps

<400> 163

Glx Pro Arg Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
 1 5 10 15

Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
 20 25 30

Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
 35 40 45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly
 50 55

<210> 164
 <211> 57
 <212> PRT
 <213> Dendroaspis polylepis polylepis

<400> 164

Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe
 1 5 10 15

Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro
 20 25 30

Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile
 35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Val
 50 55

<210> 165
 <211> 59
 <212> PRT
 <213> Dendroaspis polylepis polylepis

<400> 165

Leu Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys
 1 5 10 15

Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys
 20 25 30

Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser
 35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly
 50 55

<210> 166
 <211> 61
 <212> PRT
 <213> Vipera ammodytes
 <400> 166

Glx Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
 1 5 10 15

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys
 20 25 30

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys
 35 40 45

Thr Trp Asp Glu Cys Arg Gln Thr Cys Gly Ala Ser Ala
 50 55 60

<210> 167
 <211> 62
 <212> PRT
 <213> Vipera ammodytes
 <400> 167

Arg Asp Arg Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
 1 5 10 15

Leu Ala Tyr Met Pro Arg Phe Tyr Tyr Asn Pro Ala Ser Asn Lys Cys
 20 25 30

Glu Lys Phe Ile Tyr Gly Gly Cys Arg Gly Asn Ala Asn Asn Phe Lys
 35 40 45

Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile
 50 55 60

<210> 168
 <211> 62
 <212> PRT
 <213> Bungarus fasciatus
 <400> 168

Lys Asn Arg Pro Thr Phe Cys Asn Leu Leu Pro Glu Thr Gly Arg Cys
 1 5 10 15

Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys
 20 25 30

Gln Lys Phe Asn Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys
 35 40 45

Thr Ile Asp Glu Cys Gln Arg Thr Cys Ala Ala Lys Tyr Gly
 50 55 60

<210> 169
 <211> 59
 <212> PRT
 <213> Anemonia sulcata

<400> 169

Ile Asn Gly Asp Cys Glu Leu Pro Lys Val Val Gly Pro Cys Arg Ala
 1 5 10 15

Arg Phe Pro Arg Tyr Tyr Tyr Asn Ser Ser Ser Lys Arg Cys Glu Lys
 20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu
 35 40 45

Glu Glu Cys Glu Lys Val Cys Gly Val Arg Ser
 50 55

<210> 170
 <211> 56
 <212> PRT
 <213> Homo sapiens

<400> 170

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
 1 5 10 15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
 20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
 35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
 50 55

<210> 171
 <211> 61
 <212> PRT
 <213> Homo sapiens

<400> 171

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala
 1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
 20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
 35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu
 50 55 60

<210> 172
 <211> 60
 <212> PRT
 <213> Bungarus multicinctus

<400> 172

Arg Gln Arg His Arg Asp Cys Asp Lys Pro Pro Asp Lys Gly Asn Cys
 1 5 10 15

Gly Pro Val Arg Ala Phe Tyr Tyr Asp Thr Arg Leu Lys Thr Cys Lys
 20 25 30

Ala Phe Gln Tyr Arg Gly Cys Asp Gly Asp His Gly Asn Phe Lys Thr
 35 40 45

Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro
 50 55 60

<210> 173
 <211> 60
 <212> PRT
 <213> Bungarus multicinctus

<400> 173

Arg Lys Arg His Pro Asp Cys Asp Lys Pro Pro Asp Thr Lys Ile Cys
 1 5 10 15

Gln Thr Val Arg Ala Phe Tyr Tyr Lys Pro Ser Ala Lys Arg Cys Val
 20 25 30

Gln Phe Arg Tyr Gly Gly Cys Asp Gly Asp His Gly Asn Phe Lys Ser
 35 40 45

Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg
 50 55 60

<210> 174
 <211> 53
 <212> PRT
 <213> Bos taurus

<400> 174

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
 1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
 50 55

<210> 175

<211> 61

<212> PRT

<213> Tachypleus tridentatus

<400> 175

Thr Glu Arg Gly Phe Leu Asp Cys Thr Ser Pro Pro Val Thr Gly Pro
 1 5 10 15

Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln
 20 25 30

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr
 35 40 45

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe
 50 55 60

<210> 176

<211> 63

<212> PRT

<213> Bombyx mori

<400> 176

Asp Glu Pro Thr Thr Asp Leu Pro Ile Cys Glu Gln Ala Phe Gly Asp
 1 5 10 15

Ala Gly Leu Cys Phe Gly Tyr Met Lys Leu Tyr Ser Tyr Asn Gln Glu
 20 25 30

Thr Lys Asn Cys Glu Glu Phe Ile Tyr Gly Gly Cys Gln Gly Asn Asp
 35 40 45

Asn Arg Phe Ser Thr Leu Ala Glu Cys Glu Gln Lys Cys Ile Asn
 50 55 60

<210> 177
 <211> 56
 <212> PRT
 <213> Bos taurus

<400> 177

Lys Ala Asp Ser Cys Gln Leu Asp Tyr Ser Gln Gly Pro Cys Leu Gly
 1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
 20 25 30

Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln
 35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
 50 55

<210> 178
 <211> 61
 <212> PRT
 <213> Bos taurus

<400> 178

Thr Val Glu Ala Cys Asn Leu Pro Ile Val Gln Gly Pro Cys Arg Ala
 1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg
 20 25 30

Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln
 35 40 45

Lys Glu Cys Lys Glu Tyr Cys Gly Ile Pro Gly Glu Ala
 50 55 60

<210> 179
 <211> 53
 <212> PRT
 <213> Artificial

<220>
 <223> Engineered BPTI (KR15, ME52)

<400> 179

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Arg Ala
 1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
50 55

<210> 180
<211> 59
<212> PRT
<213> Artificial

<220>
<223> Isoaprotinin G-1

<400> 180

Glx Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys
1 5 10 15

Ala Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
20 25 30

Pro Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys Ser
35 40 45

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 181
<211> 58
<212> PRT
<213> Artificial

<220>
<223> Isoaprotinin 2

<400> 181

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ser
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 182
<211> 58
<212> PRT

<213> Artificial

<220>

<223> Isoaprotinin G-2

<400> 182

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 183

<211> 58

<212> PRT

<213> Artificial

<220>

<223> Isoaprotinin 1

<400> 183

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 184

<211> 13

<212> DNA

<213> Artificial

<220>

<223> synthetic, SfiI restriction site

<224>

<221> misc_feature

<222> (5)..(9)

<223> n is a, c, g or t

<400> 184

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<400> 186
cggaccgtat ccaggcttta cactttatgc ttccggctcg tataatgtgt ggaattgtga      60

gaggataaca attcctagga ggctcact atg aag aaa tct ctg gtt ctt aag      112
Met Lys Lys Ser Leu Val Leu Lys
1 5

gct agc gtt gct gtc ggc aac ctg gta ccg atg ctg tct ttt gct cgt      160
Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg
10 15 20

ccg gat ttc tgt ctg gag ccg cca tat act ggg ccc tgc aaa ggc cgc      208
Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg
25 30 35 40

atc atc cgt tat ttc tac aac gct aaa gca ggc ctg tgc cag acc ttt      256
Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe
45 50 55

gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg gcc gaa      304

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Ladner7L.ST25.txt

Val	Tyr	Gly	Gly	Cys	Arg	Ala	Lys	Arg	Asn	Asn	Phe	Lys	Ser	Ala	Glu		
			60					65					70				
gat	tgc	atg	cgt	acc	tgc	ggt	ggc	gcc	gct	gaa	ggt	gat	gat	ccg	gcc		352
Asp	Cys	Met	Arg	Thr	Cys	Gly	Gly	Ala	Ala	Glu	Gly	Asp	Asp	Pro	Ala		
		75					80					85					
aaa	gcg	gcc	ttt	aac	tct	ctg	caa	gct	tct	gct	acc	gaa	tat	atc	ggc		400
Lys	Ala	Ala	Phe	Asn	Ser	Leu	Gln	Ala	Ser	Ala	Thr	Glu	Tyr	Ile	Gly		
		90				95					100						
tac	gcg	tgg	gcc	atg	gtg	gtg	ggt	atc	ggt	ggt	gct	acc	atc	ggc	atc		448
Tyr	Ala	Trp	Ala	Met	Val	Val	Val	Ile	Val	Gly	Ala	Thr	Ile	Gly	Ile		
105					110					115					120		
aaa	ctg	ttt	aag	aaa	ttt	act	tgc	aaa	gcg	tct	taatagtgag	ggtaccagtc					501
Lys	Leu	Phe	Lys	Lys	Phe	Thr	Ser	Lys	Ala	Ser							
			125					130									
taagcccgcc	taatgagcgg	gctttttttt	tcctgagg														539

<210> 187
 <211> 131
 <212> PRT
 <213> Artificial

<220>
 <223> DNA/Protein of Table 25

<400> 137

Met	Lys	Lys	Ser	Leu	Val	Leu	Lys	Ala	Ser	Val	Ala	Val	Ala	Thr	Leu		
1				5					10					15			
Val	Pro	Met	Leu	Ser	Phe	Ala	Arg	Pro	Asp	Phe	Cys	Leu	Glu	Pro	Pro		
			20					25					30				
Tyr	Thr	Gly	Pro	Cys	Lys	Ala	Arg	Ile	Ile	Arg	Tyr	Phe	Tyr	Asn	Ala		
		35					40					45					
Lys	Ala	Gly	Leu	Cys	Gln	Thr	Phe	Val	Tyr	Gly	Gly	Cys	Arg	Ala	Lys		
		50				55					60						
Arg	Asn	Asn	Phe	Lys	Ser	Ala	Glu	Asp	Cys	Met	Arg	Thr	Cys	Gly	Gly		
65					70				75					80			
Ala	Ala	Glu	Gly	Asp	Asp	Pro	Ala	Lys	Ala	Ala	Phe	Asn	Ser	Leu	Gln		
			85					90						95			
Ala	Ser	Ala	Thr	Glu	Tyr	Ile	Gly	Tyr	Ala	Trp	Ala	Met	Val	Val	Val		
			100					105					110				
Ile	Val	Gly	Ala	Thr	Ile	Gly	Ile	Lys	Leu	Phe	Lys	Lys	Phe	Thr	Ser		
		115					120					125					

Lys Ala Ser
130

<210> 188
<211> 176
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 26 DNA_seq1

<400> 188
ccgtccgtcg gaccgtatcc aggcctttaca ctttatgctt ccggctcgta taatgtgtgg 60
aattgtgagc ggataacaat tcctagggcc gtccttcga aagcgtctta atagtgaggt 120
taccagtcta agcccgcta atgagcgggc tttttttttc ctgaggcagg tgagcg 176

<210> 189
<211> 176
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 27 DNA_synth1, upper strand

<400> 189
ccgtccgtcg gaccgtatcc aggcctttaca ctttatgctt ccggctcgta taatgtgtgg 60
aattgtgagc ggataacaat tcctagggcc gtccttcga aagcgtctta atagtgaggt 120
taccagtcta agcccgcta atgagcgggc tttttttttc ctgaggcagg tgagcg 176

<210> 190
<211> 100
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 27 DNA_synth1, lower strand; oligo #4

<400> 190
cgctcacctg cctcaggaaa aaaaaagccc gtcattagg cgggcttaga ctggtaacct 60
gactattaag acgctttcga aggagcggcc ctaggaattg 100

<210> 191
<211> 171
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 28 DNA_Seq 2/Protein

<220>
<221> CDS
<222> (15)..(162)

<400> 191

Ladner7L.ST25.txt

gcaccaacgc ctaggaggct cact atg aag aaa tct ctg gtt ctt aag gct 51
Met Lys Lys Ser Leu Val Leu Lys Ala
1 5

agc gtt gct gtc gcg acc ctg gta ccg atg ctg tct ttt gct cgt ccg 99
Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg Pro
10 15 20 25

gat ttc tgt ctc gag ccg cca tat act ggg ccc tgc aaa gcg cgc atc 147
Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile
30 35 40

atc cgt act tgc aaa gcggtgcg 171
Ile Arg Thr Ser Lys
45

<210> 192
<211> 46
<212> PRT
<213> Artificial

<220>
<223> synthetic, Table 28 DNA_Seq 2/Protein

<400> 192

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Thr Ser Lys
35 40 45

<210> 193
<211> 171
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 29 DNA_Synth2, upper strand

<400> 193
gcaccaacgc ctaggaggct cactatgaag aaatctctgg ttcttaaggc tagcggtgct 60

gtcgcgaccc tggtaaccgat gctgtctttt gctcgctccg atttctgtct cgagccgcca 120

tatactgggc cctgcaaagc gcgcattcatc cgtacttcga aagcggctgc g 171

<210> 194
<211> 96
<212> DNA
<213> Artificial

<220>
<223> Oligo #6, hybridizes to DNA_synth2 in Table 29

<400> 194

cgcagccgct ttogaagtaa ggatgatgag cgctttgcag ggcccagtat atggcggctc 60
 gagacagaaa tcggacgag caaaaagacag catcgg 96

<210> 195
 <211> 165
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 30, DNA_seq3/protein

<220>
 <221> CDS
 <222> (10)..(156)

<400> 195
 cccatgcaca cgc cgc atc atc cgt tat ttc tac aac gct aaa gca ggc ctg 51
 Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu
 1 5 10
 tgc cag acc ttt gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt 99
 Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe
 15 20 25 30
 aaa tgc gcc gaa gat tgc atg cgt acc tgc ggt ggc gcc gct gaa ttt 147
 Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe
 35 40 45
 act tgc aaa gcgtgcgcg 165
 Thr Ser Lys

<210> 196
 <211> 49
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, Table 30, DNA_seq3/protein

<400> 196
 Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
 1 5 10 15
 Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser
 20 25 30
 Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe Thr Ser
 35 40 45
 Lys

<210> 197
 <211> 165

<212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 31 upper strand, DNA_synth3

<400> 197
 ccctgcacag cgcgcacatcat ccgttatttc tacaacgcta aagcaggcct gtgccagacc 60
 ttctgtatacg gtgggttgccg tgctaagcgt aacaacttta aatcggccga agattgcatg 120
 cgtacctgcg gtggcgccgc tgaatttact tcgaaagcgt cgccg 165

<210> 198
 <211> 97
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 31 lower strand DNA_synth3

<400> 198
 cggcgacgct ttogaagtaa attctgcggc gccacgcag gtacgcatgc aatcttcggc 60
 cgtatttaaag ttgttaagct tagcacggca accacgg 97

<210> 199
 <211> 168
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 32 DNA_Seq4/Protein

<220>
 <221> CDS
 <222> (10)..(159)

<400> 199
 cctcgccct ggc gcc gct gaa ggt gat gat ccg gcc aaa gcg gcc ttt aac 51
 Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn
 1 5 10
 tct ctg caa gct tct gct acc gaa tat atc ggt tac gcg tgg gcc atg 99
 Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met
 15 20 25 30
 gtg gtg gtt atc gtt ggt gct acc atc ggt atc aaa ctg ttt aag aaa 147
 Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys
 35 40 45
 ttt act tog aaa ggcgcgggc 168
 Phe Thr Ser Lys
 50

<210> 200
 <211> 50
 <212> PRT
 <213> Artificial

<220>

<223> synthetic, Table 32 DNA_Seq4/Protein

<400> 200

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
 1 5 10 15

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
 20 25 30

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
 35 40 45

Ser Lys
 50

<210> 201

<211> 168

<212> DNA

<213> Artificial

<220>

<223> synthetic, Table 33 upper strand DNA_synth4

<400> 201

gctcgccctg ggcgcgctga aggtgatgat ccggccaaag cggcctttaa ctctctgcaa 60

gcttctgcta ccgaatatat cggttacgcg tgggccatgg tgggtggttat cgttggtgct 120

aaccatcggtta tcaaaactggt taagaaattt acttogaag cgtcttga 168

<210> 202

<211> 93

<212> DNA

<213> Artificial

<220>

<223> synthetic, Table 33 lower strand DNA_synth4

<400> 202

tcaagacgct ttogaagtaa atttcttaaa cagtttgata ccgatggtag caccaacgat 60

aaccaccacc atggcccaag cgtaaccgat ata 93

<210> 203

<211> 41

<212> PRT

<213> Artificial

<220>

<223> synthetic, Table 34 protein library BPT - set # 2.1

<230>

<231> misc_feature

<232> (6)..(6)

<233> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (37)..(37)
 <223> Xaa can be any naturally occurring amino acid

<400> 203

Gly	Pro	Cys	Lys	Ala	Xaa	Ile	Xaa	Arg	Tyr	Phe	Tyr	Asn	Ala	Lys	Xaa
1				5				10						15	

Gly	Xaa	Cys	Gln	Thr	Phe	Xaa	Tyr	Gly	Gly	Cys	Arg	Ala	Lys	Arg	Asn
			20					25					30		

Asn	Phe	Lys	Ser	Xaa	Glu	Asp	Cys	Met
		35					40	

<210> 204
 <211> 130
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 34 upper strand vg DNA

<220>
 <221> misc_feature
 <222> (22)..(23)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (28)..(29)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (52)..(53)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (58)..(59)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (73)..(74)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (115)..(116)
 <223> n is a, c, g, or t

<400> 204
 caccctgggc cctgcaaagc gnnkacnnk cgttatttct acaacgctaa annkggtnnk 60
 tgcacagacct tcnnktaagg tggttgccgt gctaagcgta acaactttaa atctnnkgag 120
 gattgcatgc 130

<210> 205
 <211> 78
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 34 lower stand vg DNA

<220>
 <221> misc_feature
 <222> (13)..(14)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (55)..(56)
 <223> n is a, c, g, or t

<400> 205
 acggctctgga agnmatgcc accaacggca cgattcgcat tgttgaaatt tagcnnmctc 60
 ctaacgtaag caccacac 78

<210> 206
 <211> 53
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, Table 35 protein set #2 of BP112.1

<400> 206

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Asp Ile Gln Arg Tyr
 1 5 10 15

Phe Tyr Asn Ala Lys Glu Gly Leu Cys Gln Thr Phe Ser Tyr Gly Gly
 20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Glu Asp Cys Met Arg
 35 40 45

Thr Cys Gly Gly Ala
 50

<210> 207
 <211> 156
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 35 DNA, set #2 of BPII2.1

<400> 207
 ctccgagccgc catatactgg gccctgcaaa gcggatatcc agcggtattt ctacaacgct 60
 gagggcctgt gccagacett ttcgtaagggt gggtgccgtg ctaagcgtaa caactttaaa 120
 tggtaggaag attgcatgcg tacctggcgt ggcgcc 156

<210> 208
 <211> 41
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, Table 39 protein library set #2 BPII2.2

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (9)..(10)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (17)..(17)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (20)..(21)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (38)..(39)
 <223> Xaa can be any naturally occurring amino acid

<400> 208

Gly Pro Cys Xaa Ala Asp Xaa Gln Xaa Xaa Phe Tyr Asn Ala Lys Glu
 1 5 10 15

Xaa Leu Cys Xaa Xaa Phe Ser Tyr Gly Gly Cys Arg Ala Lys Arg Asn
 20 25 30

Asn Phe Lys Ser Trp Xaa Asp Cys Met
 35 40

<210> 209

<211> 132

<212> DNA

<213> Artificial

<220>

<223> synthetic, Table 39 upper strand vg DNA

<220>

<221> misc_feature

<222> (57)..(58)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (66)..(67)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (69)..(70)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (120)..(121)

<223> n is a, c, g, or t

<400> 209

gggcacgogg gccctgcmra ggggatrwaac agrvktwttt ctacaacgct aaagagnnkc 60

tgtgcnknkn kttttcgtag ggtgggttgcc gtgctaagcg taacaacttt aaatcgtagg 120

nkgattgcat gc 132

<210> 210

<211> 61

<212> DNA

<213> Artificial

<220>

<223> synthetic, Table 39 lower strand vg DNA

<220>

<221> misc_feature

<222> (41)..(42)

<223> n is a, c, g, or t

<400> 210

gccaccaacg gcacgattcg cattgttgaa atttagcacc nnmctaacgt acgcgacctg 60

61

<210> 211

<211> 53

<212> PRT

<213> Artificial

<220>

<223> synthetic, Table 40 protein library set #2 BPII2.2

<400> 211

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Glu Ala Asp Val Gln Asn Phe
1 5 10 15

Phe Tyr Asn Ala Lys Glu Phe Leu Cys Ser Ala Phe Ser Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 212

<211> 159

<212> DNA

<213> Artificial

<220>

<223> synthetic, Table 40 DNA set #2 BPII2.2

<400> 212

ctcgagccgc catatactgg gccctgcgag gcggatgttc agaatttttt ctacaacgct 60

aaagagtttc tgtgctctgc tttttcgtac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggc aggattgcat gcgtacctgc ggtggcgcc 159

<210> 213

<211> 36

<212> PRT

<213> Artificial

<220>

<223> synthetic, Table 41 protein library set #2 of BPII2.3

<220>

<221> misc_feature

<222> (4)..(4)

<223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> misc_feature
 <222> (29)..(29)
 <223> Xaa can be any naturally occurring amino acid

<400> 213

Leu Glu Pro Xaa Tyr Xaa Gly Pro Cys Glu Ala Xaa Val Gln Asn Xaa
 1 5 10 15

Phe Tyr Asn Ala Lys Xaa Phe Xaa Cys Ser Xaa Phe Xaa Tyr Gly Gly
 20 25 30

Cys Arg Ala Lys
 35

<210> 214
 <211> 117
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 41 upper strand vg DNA

<220>
 <221> misc_feature
 <222> (42)..(43)
 <223> n is a, c, g, or t

<220>

<221> misc_feature
 <222> (78)..(78)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (87)..(88)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (93)..(94)
 <223> n is a, c, g, or t

<400> 214
 cgagcctgct cgagccgvmg tatvmggggc cctgcgaggc gnnkgttcag aattdkttct 60
 acaacgccaa gvagttntnk tgcctnnkt ttnnktacgg tggttgccgt gctaagc 117

<210> 215
 <211> 67
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 41 lower strand vg DNA

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (29)..(30)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (35)..(36)
 <223> n is a, c, g, or t

<400> 215
 gatgttgagg ttcbtcaaan amacgagann maaannmatg ccaccaacgg cacgattcgc 60
 gacgggc 67

<210> 216
 <211> 53
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, Table 42 protein from set #2 BP112.3

<400> 216

Leu Glu Pro Glu Tyr Gln Gly Pro Cys Glu Ala Ala Val Gln Asn Trp
 1 5 10 15

Gln Phe Met Cys Ser Leu Phe His Tyr Gly Gly Phe Tyr Asn Ala Lys
 20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
 35 40 45

Thr Cys Gly Gly Ala
 50

<210> 217
 <211> 159
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 42, DNA from set #2 of BPII 2.3

<400> 217
 ctccgagccgg agtatcaggg gccctgogag gcggtgttc agaattgggt ctacaacgct 60
 aaacagtcta tgtgtctctt ttttcattac ggtgggtgcc gtgctaagcg taacaacttt 120
 aaatcgtggc aggattgcat ggtacctgc ggtggcgcc 159

<210> 218
 <211> 593
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, pbd mod14, Table 101a

<400> 218
 gaattcgagc tcggtaccgc gggatcctct agagtcgggt ttacacttta tgcttcgggc 60
 togtataatg tgtggaattg tgagcgctca caattgagct caggaggctt actatgaaga 120
 aatctctgggt tcttaaggct agcgttgctg tcgcgacct ggtacctatg ttgtccttcg 180
 ctccgcccga tttctgtctc gagccaccat aactggggc ctgcaaagcg cgcacatcc 240
 gotatttcta caatgctaaa gcaggcctgt gccagacott tgtatacggg ggttgccgtg 300
 ctaagggtta caactttaaa tcggccgaag attgcatgcg tacctgcggg ggccgcgctg 360
 aagggtgatga tcgggccaaag ggggccttca attctctgca agcttctgct accgagtata 420
 ttggttacgc gtgggccatg ggggtgggta tcgttggtgc taccatcggg atcaaaactgt 480
 tcaagaagtt tacttcgaag gcgtttaat gatagggtta ccagtetaag ccgcctaat 540
 gagcggggtt tttttttatc gagacctgca ggcattgcaag ctt 583

<210> 219
 <211> 584
 <212> DNA
 <213> Artificial

<220>

<223> synthetic, Table 101b

<400> 219

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gaattcgagc tcggtaccgc gggatcctct agagtcggct ttacacttta tgcttcgggc      60
tcgtataatg tgtggaattg tgagcgctca caattgagct cagaggctta ctatgaagaa      120
atctctggtt ctttaaggcta gcgttgctgt cgcgaacctg gtacctatgt tgccttcgc      180
tcgtccgcat ttctgtctcg agccaccata cactgggccc tgcaaagcgc gcatcatccg      240
ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacgggtg gttgccgtgc      300
taagcgtaac aactttaaat cggccgaaga ttgcatgcgt acctgcgggtg gcgccgctga      360
aggtgatgat ccggccaagg cggccttcaa ttctctgcaa gcttctgcta ccgagtatat      420
tggttacgcg tgggccatgg tgggtggttat cgttgggtgt accatcgggg tcaaactgtt      480
caagaagttt acttcgaagg cgtcttaaat atagggttac cagtctaagc ccgcctaattg      540
agcgggcttt ttttttatcg agacctgcag gtcgacgggc atgc                        584

```

<210> 220

<211> 132

<212> PRT

<213> Artificial

<220>

<223> synthetic, Table 102a protein

<400> 220

```

Phe Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr
1          5          10          15

```

```

Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro
          20          25          30

```

```

Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn
35          40          45

```

```

Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala
50          55          60

```

```

Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly
65          70          75          80

```

```

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
85          90          95

```

```

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
100         105         110

```

```

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
115         120         125

```

Ser Lys Ala Ser
130

<210> 221
<211> 556
<212> DNA
<213> Artificial

<220>
<223> synthetic, Table 102a DNA

<400> 221
ggatcctcta gagtcggctt tacactttat gcttcgggt cgtataatgt gtggaattgt 60
gagcgctcac aattgagctc aggaggctta ctatgaagaa atctctgggt ctttaaggcta 120
gagttgctgt cggagacctg gtacctatgt tgtccttcgc tcgtccggat ttctgtctcg 180
agccaccata cactggggccc tgcaaagcgc gcacatccg ctatttctac aatgctaaag 240
caggcctgtg ccagaccttt gtatacggtg gttgccgtgc taagcgtaac aactttaaat 300
cggccgaaga ttgcatgcgt acctgogggt ggcgcgtga aggtgatgat ccggccaagg 360
cggccttcaa ttctctgcaa gcttctgcta ccgagtatat tggttacgcg tgggccatgg 420
tggtggttat cgttggtgct accatcggga tcaaactgtt caagaagttt acttcgaagg 480
cgtcttaatg atagggttac cagtctaagc ccgcctaatg agcgggcttt ttttttatcg 540
agacctgcag gcacgc 556

<210> 222
<211> 132
<212> PRT
<213> Artificial

<220>
<223> synthetic, Table 102b protein

<400> 222
Phe Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr
1 5 10 15
Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro
20 25 30
Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn
35 40 45
Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala
50 55 60
Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly
65 70 75 80

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
 85 90 95

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
 100 105 110

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
 115 120 125

Ser Lys Ala Ser
 130

<210> 223
 <211> 563
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 102b DNA

<400> 223
 ggatcctcta gagtcgggtt tacactttat gcttcgggt cgtataatgt gtggaattgt 60
 gagcgctcac aattgagctc agaggcttac tatgaagaaa tctctgggtc ttaaggctag 120
 cgttgctgtc ggcacccctgg tacctatggt gtccttcggt cgtccggatt tctgtctcga 180
 ggcaccatac actggggccct gcaaaagcgc catcatccgc tatttctaca atgctaaagc 240
 aggcctgtgc cagacctttg tatacgggtg ttgccgtgct aagcgtaaca actttaaatc 300
 ggcgaagat tgcctggcta cctgcgggtg cgccgctgaa ggtgatgac cggccaaggc 360
 ggccttcaat tctctgcaag cttctgctac cgagtatatt ggttacgct gggccatggt 420
 ggtggttatc gttggtgcta ccacgggat caaactgttc aagaagtta cttcgaaggc 480
 gtcttaatga tagggttacc agtctaagcc cgcctaata gggggctttt tttttatcga 540
 gacctgcagg tcgacggca tgc 563

<210> 224
 <211> 132
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, Table 103 protein

<400> 224

Phe Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr
 1 5 10 15

Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro
 20 25 30

Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn
 35 40 45

Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala
 50 55 60

Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly
 65 70 75 80

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
 85 90 95

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
 100 105 110

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
 115 120 125

Ser Lys Ala Ser
 130

<210> 225
 <211> 526
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic, Table 103 DNA

<400> 225
 ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60
 agctcaggag gcttactatg aagaaatctc tggttcttaa ggctagcggt gctgtcgcga 120
 ccttggtacc tatgttgtec ttcgctcgte cggattttctg tctcgagcca ccatacactg 180
 ggccttgcaa agcgcgcatc atcgcctatt tctacaatgc taaagcaggc ctgtgccaga 240
 ccttggtata cggtggttgc cgtgctaagc gtaacaactt taaatcggcc gaagattgca 300
 tgcgtacatg cggtgggccc gctgaaggtg atgatccggc caaggcggcc ttcaattctc 360
 tgcgaagctc tgctacggag tatattggtt acgcgtgggc catggtggtg gttatcgttg 420
 gtcgtacatc cgggatcaaa ctgttcaaga agtttaactc gaaggcgtct taatgatagg 480
 gttaccagtc taagcccgcc taatgagggg gctttttttt tatoga 526

<510> 226
 <511> 68
 <512> DNA
 <513> Artificial

<520>

<223> oligo #801 Table 104-105

<400> 226
 ggctttacac tttatgcttc cggctcgat aatgtgtgga attgtgagcg ctcacaattg 60
 agctcagg 68

<210> 227
 <211> 67
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #802 Table 104-105

<400> 227
 aggcttacta tgaagaaatc tctggttctt aaggctagcg ttgctgtcgc gaccctggta 60
 cctatgt 67

<210> 228
 <211> 70
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #803 Table 104-105

<400> 228
 tgtccttcgc tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc 60
 gcatcctcgc 70

<210> 229
 <211> 67
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #804 Table 104-105

<400> 229
 ctattttctac aatgctaaag caggcctgtg ccagaccttt gtatacgggtg gttgccgtgc 60
 taagcgt 67

<210> 230
 <211> 76
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #805 Table 104-105

<400> 230
 aacaacttta aatcggcga agattgcatg cgtacctgag gtggcgccgc tgaaggtgat 60
 gatccggcca aggcgg 76

<210> 231
 <211> 67
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #806 Table 104-105

<400> 231
 ccttcaattc tctgcaagct tctgctaccg agtatattgg ttacgcgtgg gccatggtgg 60
 tgggttat 67

<210> 232
 <211> 69
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #807 Table 104-105

<400> 232
 cgttggtgct accatcgga tcaaaactggt caagaagttt acttcgaagg cgtcttaatg 60
 atagggtta 69

<210> 233
 <211> 38
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #808 Table 104-105

<400> 233
 ccagtctaag ccgcgctaata gagcgggctt ttttttta 38

<210> 234
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #810 Table 104-105

<400> 234
 tggataaaaa aaaagccgc tcattaggc 29

<210> 235
 <211> 69
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #811 Table 104-105

<400> 235
 ggggttagac tggtaacct atcattaaga cgccttcgaa gtaaaccttc tgaacagttt 60
 gatcccgat 69

<210> 236
 <211> 65
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #812 Table 104-105

<400> 236
 ggtagcacca acgataacca ccaccatggc ccacgcgtaa ccaatatact cggtagcaga 60
 agctt 65

<210> 237
 <211> 76
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #813 Table 104-105

<400> 237
 gcagagaatt gaaggccgcc ttggccggat catcaccttc agcggcgcca ccgcaggtac 60
 goatgcaatc ttoggc 76

<210> 238
 <211> 67
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #814 Table 104-105

<400> 238
 cgatttaaag ttgttacgct tagcacggca accaccgtat acaaaggtct ggcacaggcc 60
 tgcttta 67

<210> 239
 <211> 72
 <212> DNA
 <213> Artificial

<220>
 <223> oligo #815 Table 104-105

<400> 239
 gcattgtaga aatagcggat gatgcgcgct ttgcagggcc cagtgtatgg tggctcgaga 60
 cagaaatccg ga 72

<210> 240
 <211> 65
 <212> DNA
 <213> Artificial

<220>

<223> oligo #816 Table 104-105

<400> 240
cgagcgaagg acaacatagg taccagggtc gcgacagcaa cgctagcctt aagaaccaga 60
gatttt 65

<210> 241
<211> 68
<212> DNA
<213> Artificial

<220>
<223> oligo #817 Table 104-105

<400> 241
cttcatagta agcctcctga gctcaattgt gagcgctcac aattccacac attatacgag 60
ccggaagg 68

<210> 242
<211> 15
<212> DNA
<213> Artificial

<220>
<223> synthetic 802:812 junction

<400> 242
aggcttacta tgaag 15

<210> 243
<211> 13
<212> DNA
<213> Artificial

<220>
<223> synthetic 803:816 junction

<400> 243
tgtccttcgc tcg 13

<210> 244
<211> 15
<212> DNA
<213> Artificial

<220>
<223> synthetic 804:815 junction

<400> 244
ctatttctac aatgc 15

<210> 245
<211> 15
<212> DNA
<213> Artificial

<220>

<223> synthetic 805:814 junction

<400> 245

aacaacttta aatcg

15

<210> 246

<211> 15

<212> DNA

<213> Artificial

<220>

<223> synthetic 806:813 junction

<400> 246

cattcaattc tctgc

15

<210> 247

<211> 13

<212> DNA

<213> Artificial

<220>

<223> synthetic 807:812 junction

<400> 247

cgttggtget acc

13

<210> 248

<211> 13

<212> DNA

<213> Artificial

<220>

<223> synthetic 808:811 junction

<400> 248

ccagtcctaag ccc

13

<210> 249

<211> 23

<212> PRT

<213> Artificial

<220>

<223> PhoA signal

<400> 249

Met Lys Gln Ser Thr Ile Ala Leu Ala Leu Leu Pro Leu Leu Phe Thr
1 5 10 15

Pro Val Thr Lys Ala Arg Thr
20

<210> 250

<211> 27

<212> PRT

<213> Artificial

<220>

<223> MalE signal

<400> 250

Met	Lys	Ile	Lys	Thr	Gly	Ala	Arg	Ile	Leu	Ala	Leu	Ser	Ala	Leu	Thr
1				5					10					15	

Thr	Met	Met	Phe	Ser	Ala	Ser	Ala	Leu	Ala	Lys
			20					25		

<210> 251

<211> 24

<212> PRT

<213> Artificial

<220>

<223> OmpF signal

<400> 251

Met	Met	Lys	Arg	Asn	Ile	Leu	Ala	Val	Ile	Val	Pro	Ala	Leu	Leu	Val
1				5					10					15	

Ala	Gly	Thr	Ala	Asn	Ala	Ala	Glu
			20				

<210> 252

<211> 25

<212> PRT

<213> Artificial

<220>

<223> Bla signal

<400> 252

Met	Ser	Ile	Gln	His	Phe	Arg	Val	Ala	Leu	Ile	Pro	Phe	Phe	Ala	Ala
1				5					10					15	

Phe	Cys	Leu	Pro	Val	Phe	Ala	His	Pro
			20					25

<210> 253

<211> 27

<212> PRT

<213> Artificial

<220>

<223> lamB signal

<400> 253

Met	Met	Ile	Thr	Leu	Arg	Lys	Leu	Pro	Leu	Ala	Val	Ala	Val	Ala	Ala
1				5					10					15	

Gly Val Met Ser Ala Gln Ala Met Ala Val Asp
 20 25

<210> 254
 <211> 22
 <212> PRT
 <213> Artificial

<220>
 <223> Lpp signal

<400> 254

Met Lys Ala Thr Lys Leu Val Leu Gly Ala Val Ile Leu Gly Ser Thr
 1 5 10 15

Leu Leu Ala Gly Cys Ser
 20

<210> 255
 <211> 23
 <212> PRT
 <213> Artificial

<220>
 <223> gpIII signal

<400> 255

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

His Ser Ala Glu Thr Val Glu
 20

<210> 256
 <211> 21
 <212> PRT
 <213> Artificial

<220>
 <223> gpIII-BPTI signal

<400> 256

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

Gly Ala Arg Pro Asp
 20

<210> 257
 <211> 18
 <212> PRT
 <213> Artificial

<220>

<223> gpVIII signal

<400> 257

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
 1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp
 20 25

<210> 258

<211> 26

<212> PRT

<213> Artificial

<220>

<223> gpVIII-BPTI signal

<400> 258

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
 1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp
 20 25

<210> 259

<211> 28

<212> PRT

<213> Artificial

<220>

<223> gpVIII' signal

<400> 259

Met Lys Lys Ser Leu Val Leu Leu Ala Ser Val Ala Val Ala Thr Leu
 1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp
 20 25

<210> 260

<211> 1302

<212> DNA

<213> Artificial

<220>

<223> Table 109 MB gene III

<400> 260

gtgaaaaaat tattattcgc aattccttta gttgttcott tctattctca ctccgctgaa 60

actgttgaaa gttgttttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 120

gaagacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 180

gttgtagttt gtactggtga cgaaaactcag tgttacggta catgggttcc tattgggott 240

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gctatccctg aaaatgaggg tgggtggctct gaggggtggcg gttctgaggg tggcggttct 300
gaggggtggcg gtactaaacc tctgagtagc ggtgatacac ctattccggg ctatacttat 360
atcaaccctc tegacggcac ttatccgctt ggtactgagc aaaacccccc taatcctaata 420
ccttctcttg aggaggtctca gctctttaat actttcatgt ttcagaataa taggttccga 480
aataggcagg gggcattaac tgtttatacg ggcactgita ctcaaggcac tgaccccggt 540
aaaacttatt accagtagac tctgtatca tcaaaagcca tgtatgacgc ttactggaac 600
ggtaaattca gagactggcg ttccattct ggctttaatg aggatccatt cgtttgtgaa 660
tatcaaggcc aatcgtctga cctgctcaa cctcctgtca atgctggcgg cggctctggg 720
ggtgggttctg gtggcggtct tgaggggtgg ggtctgaggg gtggcggttc tgaggggtggc 780
ggctctgagg gagggcggttc cgggtgggtggc tctgggttccg gtgattttga ttatgaaaag 840
atggcaaaag ctaataaggg ggtatgacc gaaaatgcgg atgaaaacgc gctacagtct 900
gacgctaaaag gcaaaactga ttctgtcgtt actgattacg gtgctgctat cgatgggttc 960
attgggtgacg ttccgggctt tgcataatgg aatgggtgcta ctgggtgatt tgctggctct 1020
aattcccaaa tggctcaagt cgggtgacgg gataattcac cttaaatgaa taatttccgt 1080
caatattttac ctccctccc tcaatcgggt gaatgtcggc cttttgtctt tagcgtggg 1140
aaaccatatg aattttctat tgattgtgac aaaataaact tattccgtgg tgtctttgcg 1200
cttcttttat atgttgccac ctttatgtat gtattttcta cgtttgctaa catactgcgt 1260
aataaggagt ctaatacatg ccagttcttt tgggtattcc gt 1302

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<210> 261
 <211> 22
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic cleavage site of wild-type pIII, Table 110(A)
 <400> 261

```

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1           5           10           15

```

```

His Ser Ala Glu Thr Val
           20

```

<210> 262
 <211> 66
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic DNA of Table 110(A)

<400> 262
 gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60
 actggt 66

<210> 263
 <211> 22
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic cleavage site of modified pIII, Table 110(B)

<400> 263
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

Gly Ala Ala Glu Thr Val
 20

<210> 264
 <211> 66
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic DNA of Table 110(B) with NarI site

<400> 264
 gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctgg cgccgctgaa 60
 actggt 66

<210> 265
 <211> 84
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic protein of Table 111

<400> 265
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
 20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
 35 40 45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
 50 55 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
 65 70 75 80

Thr Val Glu Ser

<210> 266
 <211> 1230
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic Table 111, IIIsp::bpti::mautreIII fusion gene

<400> 266
 tgttttagcaa aaccccatatc agaaaattca tttactaacg tctggaaaga cgacaaaact 60
 ttagatcggt acgctaacta tgagggttgt ctgtggaatg ctacaggcgt ttaggtttgt 120
 actggtgacg aaactcagtg ttacggtaca tgggttcta ttgggcttgc taccctgaa 180
 aatgaggggtg gtggctctga ggggtggcgt tctgaggggt gcggttctga ggggtggcgt 240
 actaaacctc ctgagtaagg tgatacaact attccgggct atacttatat caacctctc 300
 gacggcaactt atccgcttg tactgagcaa aaccccgcta atcctaatac ttctcttgag 360
 gagtctcaga ctcttaatac ttctatgttt cagaataata ggttccgaaa taggcagggg 420
 gcattaactg tttatacggg cactgttact caaggcactg accccgtaa aacttattac 480
 cagtacaactc ctgtatcact aaaagccatg tatgacgctt actggaacgg taaattcaga 540
 gactggcgtt tccattctgg cttaaatgag gatccattcg tttgtgaata tcaaggccaa 600
 tegtctgacc tgcccaaac tctgtcaat gctggcggcg gctctggtgg tggttctggt 660
 ggaggctctg aggggtggtg ctctgagggg ggcggttctg aggggtggcg ctctgagggg 720
 ggcggttccg gtggtggctc tggttccggg gattttgatt atgaaaagat ggcaaacgct 780
 aataaggggg ctatgaacga aaatgcgat gaaaacgcgc tacagtctga cgctaaaggc 840
 aaacttgatt ctgtcgctac tgattacggg gctgctatcg atgggttcat tgggtgacgtt 900
 tccggccttg ctaatggtaa tgggtgctact ggtgattttg ctggctctaa ttcccaaattg 960
 gctcaagtcg gtgacggtga taattcaact ttaatgaata atttcgtca atatttacct 1020
 tccctccctc aatcggttga atgtcgccct tttgtcttta gcgctggtaa accatatgaa 1080
 tttctatttg attgtgacaa aataaaacta ttccgtgggtg tctttgaggt tcttttatat 1140
 gttgcacact ttatgtatgt atttctacg tttgctaaca tactgcgtaa taaggagtct 1200
 taatcatgcc agttcttttg ggtattccgt 1230

<410> 267
 <411> 867
 <412> DNA
 <413> Artificial

<220>

<223> synthetic protein of Table 112, DNA

<220>

<221> CDS

<222> (96)..(488)

<400> 267

ggatccactc cccatccccc tgttgacaat taatcatcgg ctcgataat gtgtggaatt 60

gtgagcgctc acaattgagc tctggaggaa ataaa atg aag aaa tct ctg gtt 113
 Met Lys Lys Ser Leu Val
 1 5

ctt aag gct agc gtt gct gtc gcg acc ctg gta cct atg ttg tcc ttc 161
 Leu Lys Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe
 10 15 20

gct cgt ccg gat ttc tgt ctg gag cca cca tac act ggg ccc tgc aaa 209
 Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys
 25 30 35

gcg cgc atc atc cgc tat ttc tac aat gct aaa gca ggc ctg tgc cag 257
 Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
 40 45 50

acc ttt gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg 305
 Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser
 55 60 65 70

gcc gaa gat tgc atg cgt acc tgc ggt ggc gcc gct gaa ggt gat gat 353
 Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp
 75 80 85

ccg gcc aag gcg gcc ttc aat tct ctg caa gct tct gct acc gag tat 401
 Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr
 90 95 100

att ggt tac gcg tgg gcc atg gtg gtg gtt atc gtt ggt gct acc atc 449
 Ile Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile
 105 110 115

ggg atc aaa ctg ttc aag aag ttt act tcg aag gcg tct taatgatagg 498
 Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser
 120 125 130

gttaccagtc taagcccgcc taatgagcgg gctttttttt tatcgagacc tgcaggtcga 558

ccggcatgc 567

<210> 268

<211> 131

<212> PRT

<213> Artificial

<220>

<223> synthetic protein of Table 112, DNA

<400> 168

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu

1

5

10

15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
 20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
 35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
 50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
 65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
 85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
 100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
 115 120 125

Lys Ala Ser
 130

<210> 269
 <211> 550
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic Table 113 DNA/Protein

<220>
 <221> CDS
 <222> (99)..(479)

<400> 269
 ggatccactc cccatccccc tgttgacaat taatcatcgg ctctgataat gtgtggaatt 60
 gtgagcgctc acaattgagc tccatggggag aaaataaaa atg aaa caa agc acg atc 116
 Met Lys Gln Ser Thr Ile
 1 5
 gca ctg tta ccg tta ctg ttt acc cct gtg aca aaa gcc cgt ccg gat 164
 Ala Leu Leu Pro Leu Leu Phe Thr Pro Val Thr Lys Ala Arg Pro Asp
 10 15 20
 ttc tgt ctg gag cca cca tac act ggg ccg tgc aaa gcc cgg atc atc 212
 Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile
 25 30 35
 cgc tat ttc tac aat gct aaa gca gcc ctg tgc cag acc ttt gta tac 260
 Page 108

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Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr
 40          45          50
ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg gcc gaa gat tgc      308
Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys
55          60          65          70
atg cgt acc tgc ggt ggc gcc gct gaa ggt gat gat ccg gcc aag gcg      356
Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala
          75          80          85
gcc ttc aat tct ctg caa gct tct gct acc gag tat att ggt tac gcg      404
Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala
          90          95          100
tgg gcc atg gtg gtg gtt atc gtt ggt gct acc atc ggg atc aaa ctg      452
Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu
          105          110          115
ttc aag aag ttt act tcg aag gcg tct taatgatagg gttaccagtc      499
Phe Lys Lys Phe Thr Ser Lys Ala Ser
          120          125
taagcccgcc taatgagcgg gctttttttt tatcgagacc tgcaggtcga c      550

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<210> 270
 <211> 127
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic Table 113 DNA/Protein

<400> 270

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Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
 1          5          10          15
Thr Lys Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro
          20          25          30
Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu
          35          40          45
Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe
          50          55          60
Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly
          65          70          75          80
Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr
          85          90          95
Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala
          100          105          110

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Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser
 115 120 125

<210> 271
 <211> 1455
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic Table 116 DNA/Protein

<220>
 <221> CDS
 <222> (1)..(1452)

<400> 271
 atg aaa aaa tta tta ttc gca att cct tta gtt gtt cct ttc tat tct 48
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15
 ggc gcc cgt ccg gat ttc tgt ctc gag cca cca tac act ggg ccc tgc 96
 Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
 20 25 30
 aaa ggc cgc atc atc cgc tat ttc tac aat gct aaa gca ggc ctg tgc 144
 Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
 35 40 45
 cag acc ttt gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt aaa 192
 Gln Thr Phe Val Tyr Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
 50 55 60
 tgg gcc gaa gat tgc atg cgt acc tgc ggt ggc gcc ggc gcc gct gaa 240
 Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
 65 70 75 80
 act gtt gaa agt tgt tta gca aaa ccc cat aca gaa aat tca ttt act 288
 Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe Thr
 85 90 95
 aac gtc tgg aaa gac gac aaa act tta gat cgt tac gct aac tat gag 336
 Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu
 100 105 110
 ggt tgt ctg tgg aat gct aca ggc gtt gta gtt tgt act ggt gac gaa 384
 Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu
 115 120 125
 act cag tgt tac ggt aca tgg gtt cct att ggg ctt gct atc cct gaa 432
 Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu
 130 135 140
 aat gag ggt ggt ggc tct gag ggt ggc ggt tct gag ggt ggc ggt tct 480
 Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser
 145 150 155 160
 gag ggt ggc ggt act aaa cct cct gag tac ggt gat aca cct att ccg 528
 Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile Pro
 165 170 175
 ggc tat act tat atc aac cct ctc gac ggc act tat ccg cct ggt act 576
 Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly Thr

Ladner7L.ST25.txt

180	185	190	
gag caa aac ccc ggt aat cct aat cct tct ctt gag gag tct cag cct Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro 195 200 205			624
ctt aat act ttc atg ttt cag aat aat agg ttc cga aat agg cag ggg Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly 210 215 220			672
gca tta act gtt tat acg ggc act gtt act caa ggc act gac ccc gtt Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val 225 230 235 240			720
aaa act tat tac cag tac act cct gta tca tca aaa gcc atg tat gac Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp 245 250 255			768
ggt tac tgg aac ggt aaa ttc aga gac tgc ggt ttc cat tct ggc ttt Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe 260 265 270			816
aat gag gat cca ttc gtt tgt gaa tat caa ggc caa tcg tct gac ctg Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu 275 280 285			864
cct caa cct cct gtc aat ggt ggc ggc ggc tct ggt ggt ggt tct ggt Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly 290 295 300			912
ggc ggc tct gag ggt ggt ggc tct gag ggt ggc ggt tct gag ggt ggc Gly Gly Ser Glu Gly Gly Ser Glu Gly Gly Ser Glu Gly Gly Ser Gly 305 310 315 320			960
ggc tct gag gga ggc ggt tcc ggt ggt ggc tct ggt tcc ggt gat ttt Gly Ser Glu Gly Gly Gly Ser Gly Gly Ser Gly Ser Gly Asp Phe 325 330 335			1008
gat tat gaa aag atg gca aac ggt aat aag ggg ggt atg acc gaa aat Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn 340 345 350			1056
gac gat gaa aac ggc cta cag tct gac ggt aaa ggc aaa ctt gat tct Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser 355 360 365			1104
gtc ggt act gat tac ggt ggt ggt atc gat ggt ttc att ggt gac gtt Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val 370 375 380			1152
tcc ggc ctt ggt aat ggt aat ggt ggt act ggt gat ttt ggt ggc tct Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser 385 390 395 400			1200
aat tcc caa atg ggt caa gtc ggt gac ggt gat aat tca cct cta atg Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met 405 410 415			1248
aat aat ttc cgt caa tat tta cct tcc ctc cct caa tcg gtt gaa tgt Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys 420 425 430			1296
ggc cct ttt gtc ttt agc ggt ggt aaa cca tat gaa ttt tct att gat Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp 435 440 445			1344

435	440	445	
tgt gac aaa ata aac tta ttc cgt ggt gtc ttt gcg ttt ctt tta tat			1392
Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr			
450	455	460	
ggt gcc acc ttt atg tat gta ttt tct acg ttt gct aac ata ctg cgt			1440
Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg			
465	470	475	480
aat aag gag tct taa			1455
Asn Lys Glu Ser			

<210> 272
 <211> 484
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic Table 116 DNA/Protein

<400> 272

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
35 40 45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
50 55 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
65 70 75 80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe Thr
85 90 95

Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu
100 105 110

Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu
115 120 125

Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu
130 135 140

Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser
145 150 155 160

Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile Pro
 165 170 175

Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly Thr
 180 185 190

Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro
 195 200 205

Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly
 210 215 220

Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val
 225 230 235 240

Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp
 245 250 255

Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe
 260 265 270

Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu
 275 280 285

Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly
 290 295 300

Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly
 305 310 315 320

Gly Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe
 325 330 335

Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn
 340 345 350

Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser
 355 360 365

Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val
 370 375 380

Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser
 385 390 395 400

Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met
 405 410 415

Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys
 420 425 430

Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp
 435 440 445

Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr
 450 455 460

Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg
 465 470 475 480

Asn Lys Glu Ser

<210> 273
 <211> 131
 <212> PRT
 <213> Artificial

<220>
 <223> synthetic, amino acid Seq 2

<400> 273

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
 1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
 20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
 35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
 50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
 65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
 85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
 100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
 115 120 125

Lys Ala Ser

130

<210> 274
<211> 23
<212> PRT
<213> Artificial

<220>

<223> Fig. 15, residues 20-42 of scorpion toxin

<400> 274

Gly	Glu	Asn	Glu	Gly	Cys	Asp	Thr	Glu	Gly	Lys	Ala	Lys	Asn	Gly	Gly
1				5					10					15	

Gly	Ser	Tyr	Gly	Tyr	Cys	Tyr
			20			